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jects the doctrine of inspiration as heretofore taught, and maintains that all scholarly theologians do the same. A religion in harmony with science may, he thinks, be founded on the following doctrines: "1^o. There is an Infinite Intelligence whom we call God; 2^o. Man is by nature a religious being; 3^o. Every religion has in it a nucleus of truth; 4^o. No religion is exclusively true or founded upon an exclusively divine revelation." Christianity, however, is regarded as the best of all religions, and as the "highest outcome of human nature." Mr. Bray quotes many passages from non-Christian religious writers, including the Greek philosophers, the authors of the Vedas, the Chinese moralists, and many others, in support of his positions; and these quotations form an interesting portion of the book. On the subject of immortality the author speaks with hesitation, presenting the arguments on both sides, and drawing the conclusion that there is ground for hope but not for dogmatizing. Our readers will see that there is nothing essentially new in these views; but as coming from a clergyman, and addressed to a congregation of the people,—for they were originally presented in public lectures,—they have considerable interest, and Mr. Bray's book will well repay perusal.

A Text-Book of Euclid's Elements. By H. S. HALL and F. H. STEVENS. London and New York, Macmillan. 12^o. \$1.10.

THIS volume contains the first six books of Euclid's elements, together with appendices giving the most important elementary developments of Euclidean geometry. The text has been carefully revised, and special attention given to those points which experience has shown to present difficulties to beginners. The authors have been guided in part by the suggestions contained in the textbook of the Association for the Improvement of Geometrical Teaching. The propositions are throughout treated very fully, and the authors have avoided condensing two or more steps into one. In this they were guided by the weighty consideration that only a small proportion of those who study elementary geometry, and study it with profit, are destined to become mathematicians. To a large majority of students, Euclid is intended to serve not so much as a lesson in mathematical reasoning, as the first, and sometimes the only, model of formal and rigid argument presented in an elementary education.

NOTES AND NEWS.

THE Christmas number of *Scribner's Magazine*, which completes its second year, will contain a variety of articles in prose and verse, especially suited in sentiment and illustration for the holiday season. There will be twenty full-page pictures, and many others from drawings by such artists as Elihu Vedder, J. Alden Weir, W. Hamilton Gibson, Bruce Crane, and Robert Blum. The art of making stained-glass windows, which has had its renaissance in this country within the last twelve years, will be the subject of a paper by Will H. Low; the third and concluding instalment of Lester Wallack's reminiscences will appear; George Hitchcock (the artist, whose picture, 'The Tulip Garden,' in the Paris salon of 1887, made his reputation) has written and illustrated for the number a short paper on 'Sandro Botticelli,' as 'the man who, above all others, gave an impulse in the right direction to the new art of the Christian world,' and Elihu Vedder has illustrated a strikingly original anonymous poem which will, it is believed, excite considerable curiosities as to its authorship.—*Treasure Trove* for November opens with an illustrated account of the Lick Observatory, followed by articles on the Wilkes-Barre accident; the Canadian fish question; the disagreement of the doctors; the Chicago riots; and the wheat corner, under the caption 'Is that the Law?' by Wolstan Dixey; 'Yellow Fever,' by W. H. H.; 'A Famous Astronomer,' with portrait of the late Richard A. Proctor; 'American Politics,' by Oscar R. Hart; 'Getting Ready for Christmas,' with illustrations, by Lucy Clarke; 'Russian-America' (second paper), illustrated. Besides this are illustrated papers on 'Mary Stuart,' by J. R. D. L.; 'Crystals,' by Margaret E. Houston; 'Children's Lunches'; 'The Metal of the Future'; 'What Congress Costs,' and others.—A new edition of Browning's Educational Theories, with a complete analysis, a new index, and an appendix on the 'American Common School,' will be issued at once by E. L.

Kellogg & Co., of New York and Chicago. Also Dr. Nicholas Murray Butler's 'The Argument for Manual Training,' and a new edition of Perez's 'First Three Years of Childhood.' G. Stanley Hall says of this last book, "I esteem the work a very valuable one for primary and kindergarten teachers and all interested in the psychology of childhood."—The first step in avoiding mistakes is to find out how we fall into them. Valuable aid in this direction will be furnished in Prof. Joseph Jastrow's paper on 'The Psychology of Deception,' which will open the December *Popular Science Monthly*. As illustrations of his subject the author cites the tricks practised by conjurers, and the delusions which from time to time gain a hold on the public mind. 'Infant Mortality and the Environment' is the subject of an article which J. M. French, M.D., will contribute to the same magazine. Dr. French points out the chief causes of infant mortality, which are due partly to heredity and partly to the surroundings. Finally 'Beliefs About the Soul' is the title of an article by R. A. Oakes. It is full of traditions of civilized and savage peoples, relating to immortality and to plurality of souls.

—Ticknor & Co. will publish this month 'Better Times,' a volume of stories by the author of 'The Story of Margaret Kent,' 'The Philistines,' by Arlo Bates; 'Pen and Powder,' by Frank B. Wilkie, of the *Chicago Times*, a series of monographs on the late war in the West; 'Vagrom Verse,' by Charles Henry Webb (John Paul), a collection of poems, pathetic and humorous, in illuminated vellum covers: 'The Other Side of the War — with the Army of the Potomac,' letters from Headquarters of the United States Sanitary Commission during the Virginia campaign of 1862, by Katharine Prescott Wormeley, issued under the auspices of the Massachusetts Commandery of the Military Order of the Loyal Legion. Miss Wormeley, now so well known as the translator of Balzac, was a prominent worker in the Sanitary Commission, especially in the Peninsular campaign. They will also publish 'Wanderers,' being a collection of the poems of William Winter, author of 'Shakespeare's England,' etc., and dramatic critic of the *New York Tribune*.—Elizabeth Robins Pennell, wife of Joseph Pennell of Philadelphia, and his companion through Europe on a tricycle, will have a paper on 'Wells and its Cathedrals,' in the December number of the *Magazine of Art*. In this same issue will be the first of two papers on the 'Portraits of Dante Gabriel Rossetti,' by Wm. M. Rossetti. The portraits of the poet-painter in this number cover the period from his sixth to his twenty-fifth year, and are by himself, Holman Hunt, John Hancock, J. E. Millais, and others. —

Ginn & Company announce 'Analytic Geometry,' by A. S. Hardy, Professor of Mathematics in Dartmouth College, and author of 'Elements of Quaternions,' to be published in January, 1889. This work is designed for the student, not for the teacher. Particular attention has been given to those fundamental conceptions and processes which, in the author's experience, have been found to be sources of difficulty to the student in acquiring a grasp of the subject as a method of research. The limits of the work are fixed by the time usually devoted to analytic geometry in our college courses by those who are not to make a special study in mathematics. The same firm also announce 'The Beginner's Book in German,' by Sophie Doriot, author of 'The Beginner's Book in French,' to be published Jan. 1, 1889. This follows the natural method. The lessons are introduced with a humorous picture followed by some corresponding verses from the child-literature of Germany. A conversation upon the subject, with the study of words and phrases, completes the lesson. The second part contains graded selections for reading. They have in preparation 'A Reader in Botany,' for school use, selected and adapted from well-known authors by Jane H. Newell.—In the *Edinburgh Review* for October is a graphic description of a tornado and its effects.—D. Appleton & Co. will publish this week in their International Educational Series, 'Memory — What it Is and how to Improve it,' by David Kay; 'Astronomy with an Opera-Glass,' a popular introduction to the study of the starry heavens with the simplest of optical instruments, with maps and directions to facilitate the recognition of the constellations and the principal stars visible to the naked eye, by G. P. Serviss; also, new editions of Drs. Lindley and Widney's 'California of the South,' and of Edna Lyall's 'Donovan.'—Roberts Brothers will publish on the 15th 'The Man without a Country,' by Edward Everett Hale, with forty illustrations by F. T. Merrill; 'The Pil-

grim Scrip, or, Wit and Wisdom of George Meredith,' with selections from his poetry, a critical and biographical introduction, and a portrait; 'Counter Currents,' a new story by the author of 'Justina,' and a cheap edition of Shakespeare's complete works, from the text of Rev. Alexander Dyce, in seven volumes with memoir, glossary, and portrait. They have in preparation 'Jane Austen,' in the Famous Women series: 'Ethical Religion,' by William Macintyre Salter; and 'Sunday-School Stories on the Golden Texts of the International Lessons for 1889,' by Rev. E. E. Hale. — *Wide Awake* for 1889 promises to make an unusually bright and interesting volume. Serials by H. H. Boyesen, J. T. Trowbridge, Susan Coolidge, Sidney Luska, and other notable writers are promised, as well as short stories and timely articles by John Strange Winter, author of 'Bootle's Baby,' Andrew Lang, Jessie Benton Fremont, John Burroughs, Gen. O. O. Howard, E. S. Brooks, and others. Mrs. Deland's 'John Ward, Preacher,' is in the twelfth thousand. — Mrs. Burnett's 'Little Lord Fauntleroy' has reached its sixtieth thousand. — A. D. F. Randolph & Co. will publish on the 25th inst. 'The Thumb Bible,' by Bishop Jeremy Taylor. — Rand, McNally & Co. will publish at once 'The Blackhall Ghosts,' a story by Sarah Tytler (Henrietta Keddie). — The American News Company will publish this month a story entitled 'The Curse of Marriage,' by Walter Hubbell. — Charles W. Sever, of Cambridge, Mass., will publish on Dec. 1, 'Hesper,' an American drama, by William R. Thayer, author of 'Confessions of Hermes.' — The Forest and Stream Publishing Co., New York, have just issued 'Bird Portraits for the Young,' the text by Dr. W. Van Fleet and the photogravure plates by H. H. Darnell. — Dr. M. L. Holbrook, 25 Bond St., New York, will publish on the 20th inst. a work entitled 'Eating for Strength, or, Food and Work and their Relation to Health and Strength.' The author is Dr. Holbrook himself, who in this book gives 500 recipes for wholesome foods and drink. — Macmillan & Co. will publish shortly the second series of Matthew Arnold's 'Essays in Criticism,' selected by himself just before his death. The subjects are 'The Study of Poetry,' 'Milton,' 'Gray,' 'Keats,' 'Wordsworth,' 'Byron,' 'Shelley,' 'Tolstoi,' and 'Amiel.' Lord Coleridge contributes a prefatory note to the volume. — Dodd, Mead & Co. announce 'Musical Instruments and Their Homes,' with nearly 300 illustrations, to be published in very handsome form. The work will comprise a complete account of the collection of musical instruments now in the possession of Mrs. John Crosby Brown of New York City. Mrs. Brown and William Adams Brown have written the letter-press. The work will be of interest to students of music as well as to ethnologists. — Charles Scribner's Sons have in preparation a second, and probably final, collection of the poems of Mr. R. H. Stoddard. It will be entitled 'A Book of Verse: Early and Late,' and will contain a reproduction of the latest portrait of this versatile writer by Mr. George B. Butler. — W. R. Jenkins has just ready, 'Le Second Livre des Enfants,' by Paul Bercy; 'Lameness of Horses and Diseases of their Locomotory Apparatus,' by Dr. A. Liautard; and an American edition of Strangeway's 'Veterinary Anatomy,' revised by I. Vaughan. He will publish late this month or early in December 'A Veterinary Diary for 1889,' with diary leaves for memoranda and a compendium of doses; also, a work on the 'Roaring of Horses,' by Dr. George Fleming, who has given special attention and study to this particular disease. — Cassell & Co. will publish at once George Manville Fenn's new work, 'Commodore Junk,' an adventure story dealing with buccaneering life on the West Indian Main in the days of George I. They will also publish at once Walter Crane's new colored picture-book under the title of 'Flora's Feast: a Masque of Flowers.' — A prospectus has been issued for a 'History of Book Printing in Vienna, from 1482 to 1882.' It is intended as a souvenir of the great celebration held in the Austrian capital in 1882, on the occasion of the four hundredth anniversary of the introduction of printing into Vienna. The compilation will be by Dr. Anton Mayer; the printing by Friedrich Jasper; Wilhelm Frick will be the publisher. The work is to be in two volumes of royal quarto, with illuminated initials, and illustrations in the highest style of modern art. — Macmillan & Co. will publish before the close of this year 'The Recluse' (hitherto unpublished) of Wordsworth. The poem will also be included in a one-volume edition of Wordsworth's poems, which will contain all the copyright notes

and prefaces. This edition, which will be uniform with the popular edition of Lord Tennyson's poems, will thus be the only complete edition in the market. At about the same time Messrs. Macmillan will issue under the title, 'Wordsworthiana,' a volume of papers selected by Professor Knight from those read before the Wordsworth Society. Among the contributors are Matthew Arnold, Lord Coleridge, Lord Houghton, Mr. Hutton, Mr. Aubrey de Vere, Mr. Lowell, Canon Ainger, Mr. Shorthouse, and the editor. — *The American Journal of Archaeology*, Vol. iv., No. 3, contains 'The Relation of the Journal to American Archaeology,' by the editors; 'Antiquities of Southern Phrygia and the Border Lands,' by W. M. Ramsay; 'The Ancient Coinage of China,' by W. S. Ament, missionary to China; 'Gargara, Lamponia, and Pionia, Towns of the Troad,' by Joseph Thacher Clarke; 'The publications of the German Archaeological Institute,' by Charles Eliot Norton; 'The American School of Classical Studies at Athens,' by the editors; 'Publication of Inedited Documents.'

An elaborate historical work — somewhat similar in scale to that of Mr. H. H. Bancroft for the Pacific States of North America — says the London *Academy*, is announced from Australia. Mr. G. B. Barton, of Sydney, has undertaken to write a history of New South Wales from official records, in fifteen volumes, each volume covering the term of a governor's administration. The first volume will include the letters written by Governor Phillip previous to his departure from England and while on his voyage, and also his despatches from Sydney which have not before been published. In the appendix will be given, besides the Act of Parliament founding the colony, the Governor's commission and instructions, and the letters-patent constituting the courts of civil and criminal jurisdiction, and many other unpublished records of literary and historical interest. There will also be a bibliography of the colony down to 1808. — Mr. Richard Herne Shepherd has in hand a revised edition of his 'Tennysoniana,' first published about ten years ago. The new edition has been corrected and enlarged to date, and will contain a copious and exhaustive bibliography. — Mr. Frederic G. Kitton has now ready for immediate publication the first part of the work entitled 'Charles Dickens with Pen and Pencil,' upon which he has been engaged for more than two years. The principal features of this work are, according to the *Academy*: (1) a description of all the portraits of Dickens, with unpublished memoranda concerning them; (2) records of his personal characteristics, with a collection of reminiscences contributed by surviving friends; (3) one hundred illustrations, including nearly fifty portraits, reproduced by line-engraving, mezzotint, etching, photogravure, etc. Queen Victoria has allowed Mr. Kitton to engrave for his collection a pencil sketch of the novelist now in her possession. The drawing, which was taken from the life by R. J. Lane, represents Charles Dickens during the Pickwickian days. Her Majesty bought it from Mrs. George Cattermole, widow of the artist who assisted in illustrating 'Master Humphrey's Clock.' It will thus be published for the first time, and will be of interest to all Dickens collectors. The mode of publication will be twelve parts, printed on fine paper, imperial quarto, each of which will contain three full-page plates. The edition is a limited one; and subscribers should address Mr. F. T. Sabin, Garrick Street, W. C., London.

The much-delayed number of the *American Journal of Psychology* has at length appeared, dated August, 1888. Its contents differ from what the preceding numbers lead to anticipate; and it cannot be said that the change is for the better. While the main articles have been in the line of the new departures in psychology, the single contribution to this number is a minute historical study of Heraclitus. The study itself, apart from its appearance in this journal, shows unusual care and sound scholarship, and reflects great credit upon Dr. G. W. Patrick, its author. The reviews and notes continue to be abundant and interesting. They are classified under the heads of, 'The Nervous System,' 'Experimental,' 'Hypnotism,' 'Abnormal,' 'Anthropological,' 'Miscellaneous.' The price of the journal is advanced from three to five dollars per annum.

The November number (No. 38) of the Riverside Literature Series (published monthly, at 15 cents a number, by Houghton, Mifflin & Co., Boston) contains four of Longfellow's most popular poems: 'The Building of the Ship,' 'The Masque of Pandora,' 'The

Hanging of the Crane,' and 'Morituri Salutamus.' Portions of the 'Building of the Ship' have been quite extensively used in schools, but the whole poem has never appeared before in so cheap a form. To those who have read (and who have not?) the 'Paradise for Children' in Hawthorne's 'Wonder Book' (see number 17 of the same series), which tells the story of Pandora's Box, the 'Masque of Pandora' will be especially interesting. The 'Morituri Salutamus' was written for the celebration of the fiftieth anniversary of Longfellow's graduation from Bowdoin College, and is considered one of his best poems. 'The Hanging of the Crane' is too well known to need more than a passing mention. These poems, while simple enough for children of the Fourth Reader grade, will be enjoyed by all lovers of Longfellow, and by all admirers of good poetry. These poems are accompanied by very carefully prepared notes, which, without being voluminous, will be found helpful at just the places where help is needed.

— In *Science*, No. 299, page 198, first column, 14th line from the top of the page, for 'house-leek,' read 'hawk-weed.'

LETTERS TO THE EDITOR.

On Alleged Mongoloid Traits in the American Race: In Reply to Dr. Ten Kate.

IN the last number of *Science*, Dr. Ten Kate makes a series of strictures on the paper I read before the American Association for the Advancement of Science, entitled 'On the Alleged Mongoloid Affinities of the American Race.' These strictures close with some sentences which I should think a scientific mind would hesitate to write, as certainly a scientific mind will refuse to accept, — sentences to the effect that any one who differs from the opinions expressed by the writer of those strictures cannot believe in either anthropology or natural history. In spite of this *egomet dixi*, I venture to retain my opinion, and even to defend it.

But first let me state clearly what were the aim and limit of my paper.

These were simply that *in our present state of knowledge* there is no sufficient ground, either in language, in culture, or in ethnic anatomy, for the oft-repeated assertion that the American Indians belong to the Mongolian sub-species of the species *Homo*. What future researches may prove, such as those of Dr. Ten Kate, I do not pretend to say; and I distinctly avoided his example of basing present theories on imagined prospective discoveries (see his remarks in his footnote).

Some of his arguments are so extraordinary that they merit special attention. Notably so is that with reference to language. He makes the astounding assertion that we should group together languages because the nations speaking them present similar physical characteristics! I need but ask if there ever lived a scientific linguist to whom this novel system occurred. Dr. Ten Kate acknowledges, that, as yet, no linguistic connection has been shown between American languages and those of the Asiatic Mongols. This is all I asserted.

Nor does my critic attempt to show a single element of Mongolian culture in America. I maintain that this culture is autochthonous; it can all be accounted for by the sociologic history of the nations possessing it; and when such is the case, it is totally unscientific to go elsewhere to seek its origin.

Dr. Ten Kate is most diffuse on somatologic points; and on these he is singularly inconsistent. He argues that the color and character of hair and skin are of little or no importance as race distinction, adducing the Teutons and Italians as examples. I differ with him here, and I deny the correctness of his observations about the color of the American Indians; but grant his position, and does it not also prove the futility of those arguments based upon the alleged identities in these respects of Americans and Mongolians? In either case my thesis would stand intact.

With regard to the relative prevalence of the *osca Incae*, I must retain my opinion until Dr. Ten Kate is more explicit in his figures, and the same with reference to the glabella. I am prepared to furnish statistics when called upon.

In his paragraph about brachycephaly the critic contradicts not one of my statements, although he asserts that he does. If I have anywhere said that there are no brachycephalic tribes in America,

I should like the passage pointed out. His references to half a dozen authors in this connection are meaningless. Why he finds himself under the necessity of pointing out the distinction between the nasal index as determined on the bony skull and the living face, I know not. American anthropologists do not require instruction in this elementary fact. If he had been familiar with Topinard's 'Elements d'Anthropologie,' to which he refers, and which I quoted in that connection, he would have known that any intimation that I had neglected that distinction was groundless.

I shall not pursue this reply further. The reader may decide whether Dr. Ten Kate has shown a single well-established affinity between the Americans and the Asiatic Mongols. I assert he has not; and I add that such affinities are not more numerous than between the Americans and, say, the Berber tribes of North Africa.

D. G. BRINTON, M.D.

Media, Penn., Nov.

The Theory of the Origin of Species by Natural Selection.

A REMARKABLY clear conception of the elements of the theory for which Charles Darwin has become famous was published almost thirty years prior to the appearance of 'The Origin of Species.'

I have just brought home with me from London a number of geological works published in the early part of this century, among them a copy of Robert Bakewell's 'Introduction to Geology.' The passage I am about to quote from it appeared first in the fourth edition, which was published in 1833; and it is repeated in the fifth edition, published in 1838, with an interesting footnote (see pp. 403, 404).

The author is discussing Deshayes's classification of the various tertiary formations by means of comparison of the faunas with the living species. In the course of the discussion, he refers to the experiments of Robert Bakewell of Dishley, in Leicestershire, in producing choice breeds of sheep by artificial selection. He describes Mr. Bakewell's method as follows: —

"He first travelled over England, and part of the continent, to discover and select animals of the same species, possessing certain peculiarities of form, and other qualities which he was desirous to render permanent. By selecting two animals to breed from, which possessed the desired qualities in an eminent degree, and afterwards selecting from their offspring those in which these qualities were most conspicuous and breeding again from them, the peculiarities were further increased. By continuing the same selection through four or five generations, he obtained races that would transmit the same qualities permanently to succeeding generations."

Then the author applies this principle to explain the appearance of new forms of *Mollusca* in the tertiary beds, as follows: —

"Let us, however, imagine, what is very possible, that a number of individuals of one species of bivalve or univalve shell were driven, during a violent storm, into a distant part of the ocean, where the animals could no longer obtain their accustomed food, but were still able to support life by aliment of a somewhat different kind. Let us suppose that the annoyances to which they had before been subject, from natural enemies or other causes, were changed for annoyances of another kind. Under these different circumstances, is it not probable that the animals themselves would undergo some change, and modify the construction of their shells in some degree, to render them better suited to the new conditions in which they were placed? Thus, in the course of a few generations, we should have a race which conchologists would call a distinct species."

To this the author adds this footnote in the fifth edition (1838): "What was above stated hypothetically in the fourth edition of this work may now be asserted as ascertained facts. Dr. Harlan, a distinguished American naturalist, informed the author that testaceous *Mollusca* removed from one river to another in America were observed in time to change the form of their shells. Mr. Gray, in the *Philadelphia Transactions*, 1833, states that great varieties of form are produced in shells of the same species, by a removal from calm to agitated water."

Here the chief points of Darwin's theory of the origin of species are expressed. They are founded, also, upon observed facts. The